

## INFORMATION PROCESSOR AND DISPLAY DEVICE THEREFOR

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Inventor(s): NIITSUMA NOBUYUKI; JINBO KAZUMI  
Applicant(s): FUJI ELECTRIC CO LTD  
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### Abstract

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**PROBLEM TO BE SOLVED:** To make a display surface expandable to a size capable of displaying a graphic and a chart or the like while making them continuous by making a device the structure in which a display surface is erected rearward an operation part at the time of a use and the surface is possible to be integrated with the operation part and a control part while being turned forward at the time of a non-use.

**SOLUTION:** A keyboard 11 and opening and closing parts 12 whose slide shafts 2b can be rotated are formed on the upper part of a case 1 and a control part and a winding shaft 2c stretching a flexible display surface 2 by winding the lower part of the display surface 2 are provided in the inner part of the inside of the case 1. Display supporting parts 2a support the upper part of the display surface 2 and are enabled to rise and fall along slide shafts 2b and are made so as keep their positions at an arbitrary height by the friction of a spring as a stopper or the like. Plural elements of the display surface 2 and the control part are connected by a flexible printed wiring sheet, etc. When the area of the display surface 2 is required to be minimized, the display surface 2 may be wound round the winding shaft 2c by pushing down the display surface supporting part 2a downward and after the use, the display supporting parts 2a is turned forward to be integrated with the case 1 by utilizing the opening and closing parts 12.

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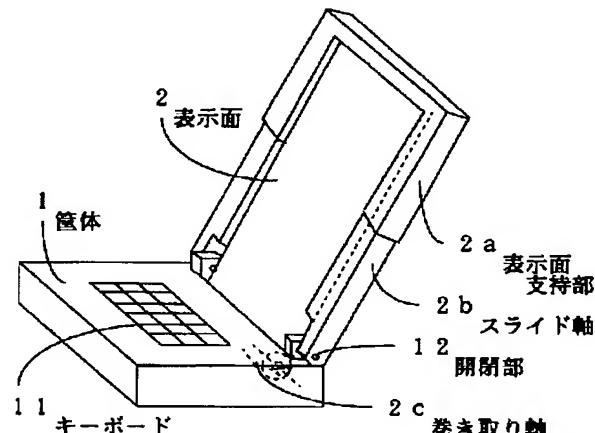
(21)出願番号	特願平7-292505	(71)出願人	000005234 富士電機株式会社 神奈川県川崎市川崎区田辺新田1番1号
(22)出願日	平成7年(1995)11月10日	(72)発明者	新妻 信行 神奈川県川崎市川崎区田辺新田1番1号 富士電機株式会社内
		(72)発明者	神保 和美 神奈川県川崎市川崎区田辺新田1番1号 富士電機株式会社内
		(74)代理人	弁理士 山口 嶽

(54)【発明の名称】 情報処理装置およびこの表示装置

(57)【要約】

【課題】グラフィクや表などを連続させて表示できる大きさに表示面を拡大しうる携帯可能な情報処理装置とこの表示装置の提供。

【解決手段】筐体1の上部にキーボード11とスライド軸2bが回動できる開閉部12を、内部の奥に可撓性の表示面2の巻き取り軸2cを設け、表示面2を拡大する時は表示面2の上端を支える表示面支持部2aをスライド軸2bに沿って任意の位置まで上げて不図示のストップで留める。



## 【特許請求の範囲】

【請求項1】操作部と制御部と表示部とで構成され制御部が収納される筐体の上部に操作部が設けられる携帯可能な情報処理装置の表示装置であって、

可撓性の表示面と、回動の中心が下部に形成された2本のスライド軸と、このスライド軸に沿って滑動できる表示面支持部と、この表示面支持部をスライド軸に固定するストッパと、表示面を張らせる筐体の下部軸とで構成され、

使用時は操作部後方に立てられ、非使用時は前方に回動されて操作部・制御部と一体化できることを特徴とする情報処理装置の表示装置。

【請求項2】操作部と制御部と表示部とで構成され制御部が収納される筐体の上部に操作部が設けられる携帯可能な情報処理装置であって、

表示部は、請求項1に記載の表示装置である事を特徴とする情報処理装置。

【請求項3】請求項2に記載の情報処理装置であって、下部軸は、スライド軸の下部に形成されて表示面を巻き取る構造を特徴とする情報処理装置。

【請求項4】請求項2に記載の情報処理装置であって、下部軸は、表示面が上下される時に操作部下を滑る構造を特徴とする情報処理装置。

【請求項5】操作部と制御部と表示部とで構成され制御部が収納される筐体の上部に操作部が設けられる携帯可能な情報処理装置であって、

表示部は、回動の中心が下部に形成された2本のスライド軸と、このスライド軸に沿って滑動できる表示面支持部と一体で操作部の後方上部に立つ表示面と、この表示面支持部をスライド軸に固定するストッパと、前記表示面の下端にて屈曲して操作部下に位置する下部の表示面とで構成され、

下部の表示面は、後方に回動された上部の表示面によって引き出され立てられて上部の表示面と共に一つの面になる構造を特徴とする情報処理装置。

【請求項6】請求項5に記載の情報処理装置であって、上部の表示面は、下部の表示面との屈曲部と平行な屈曲部が前記屈曲部上方に形成され、非使用時は前方に屈曲されて操作部・制御部と一体化できる構造を特徴とする情報処理装置。

## 【発明の詳細な説明】

## 【0001】

【発明の属する技術分野】この発明は、ラップトップ型、ノートブック型と言われている携帯可能な一体型のコンピュータやワードプロセッサなどの情報処理装置とこの情報処理装置に用いられる表示部の構造に関する。

## 【0002】

【従来の技術】この発明に関する情報処理装置は小型化が重要な課題で有り、多くの改良がなされて発展を続けているが、これによって表示部も小型にならざるをえな

い。しかし、一方でデータメモリや補助記憶装置の小型大容量化、およびC P Uと略す演算装置の高速化等により、表示内容もワークステーション並に多大になっている。この状況において、表示面を拡大するため、表示器である平面パネルを複数枚接続し、非使用時は折り畳んで収納する方法が特開平3-58108（東洋通信機株式会社の折畳式平面型表示装置）、特開平5-61635（株式会社日立製作所の情報処理装置）、特開平5-298257（株式会社東芝の携帯型電子機器）等で提案されている。これらの方針を用いれば1画面に表示できない多頁情報の一括表示が可能となって利便性が向上する。

## 【0003】

【発明が解決しようとする課題】従来の技術で述べた例では、各表示面をちょうどつがい等の可動部品にて接続しているため、各表示面の境界に必ず非表示部が存在する。そのため、文字列のようなデータや属性が異なる内容を表示する時は支障ないが、例えば、グラフィクや表などは画像を連続させて表示できない。

【0004】この発明の課題は、グラフィクや表などを連続させて表示できる大きさに表示面を拡大しうる携帯可能な情報処理装置とこの表示装置の提供である。

## 【0005】

【課題を解決するための手段】この発明は、操作部と制御部と表示部とで構成され制御部が収納される筐体の上部に操作部が設けられる携帯可能な情報処理装置の表示装置であって、可撓性の表示面と、回動の中心が下部に形成された2本のスライド軸と、このスライド軸に沿って滑動できる表示面支持部と、この表示面支持部をスライド軸に固定するストッパと、表示面を張らせる筐体の下部軸とで構成され、使用時は操作部後方に立てられ、非使用時は前方に回動されて操作部・制御部と一体化できる構造である。

【0006】また、この発明は、操作部と制御部と表示部とで構成され制御部が収納される筐体の上部に操作部が設けられる携帯可能な情報処理装置であって、表示部は請求項1に記載の表示装置であり、更に下部軸は、スライド軸の下部に形成されて表示面を巻き取る構造、ないしは表示面が上下される時に操作部下を滑る構造である。

【0007】そしてこの発明は、操作部と制御部と表示部とで構成され制御部が収納される筐体の上部に操作部が設けられる携帯可能な情報処理装置であって、表示部は、回動の中心が下部に形成された2本のスライド軸と、このスライド軸に沿って滑動できる表示面支持部と一体で操作部の後方上部に立つ表示面と、この表示面支持部をスライド軸に固定するストッパと、前記表示面の下端にて屈曲して操作部下に位置する下部の表示面とで構成され、下部の表示面は、後方に回動された上部の表示面によって引き出され立てられて上部の表示面と共に

一つの面になる構造であり、更に、上部の表示面は、下部の表示面との屈曲部と平行な屈曲部が前記屈曲部上方に形成され、非使用時は前方に屈曲されて操作部・制御部と一体化できる構造である。

【0008】

【発明の実施の形態】この発明は、表示面に屈曲可能な部位が少なくも1箇所設けた平面状の、例えば液晶表示器やエレクトロルミネッセンス表示器の、巻き取り部からの引き延ばし、平面収納からの引き出し、および屈曲状態からの展伸によって表示部を拡大する構造である。

【0009】

【実施例】

実施例1：図1はこの発明の一例の使用状態図で、筐体1の上部にキーボード11と、スライド軸2bが回動できる開閉部12が形成され、筐体1の内部に不図示の制御部と、内部奥に可撓性の表示面2の下部を巻いて張らせる巻き取り軸2cを設ける。表示面支持部2aは表示面2の上部を支持しスライド軸2bに沿って上下でき、請求項1のストップとしてバネ等の摩擦により任意の高さでその位置を保てるようとする。表示面2の複数の素子と制御部とは多数の配線にて接続されるがこれらの配線は不図示のフレキシブルプリント配線シート等による。表示面2の面積を最小にする時は表示面支持部2aを下方まで押して表示面2を巻き取り軸に巻けば良く、使用後は開閉部12を利用して表示面支持部2aを前方に回動させて筐体1と一体化させる。

【0010】実施例2：図2はこの発明の他の使用状態を示す図で、図1の表示面2の巻き取り軸2cに代えて、筐体4に引き込み軸2dおよび摺動溝2eを設けたものであり、引き込み軸2dは不図示の機構によってH方向に引かれ、図1と同様に表示面支持部2aを下端まで下ろすと引き込み棒2dは摺動溝2eを滑って入り、使用後は表示面支持部2aを筐体1と一体化させる。

【0011】実施例3：図3は表示面が上下に回動可能に分かれるこの発明を示す図で、(a)は上部表示面だけを使用する時の図、(b)は下部表示面も使用する時の図である。筐体6内の下部に、上部表示面7の下部にて回

動可能の不図示の下部表示面8を収納する。上部表示面7の上部を支える表示面支持部7aの下部は、下部表示面8と一体の摺動軸8aを溝6aに沿って動かせる移動板8bと接続させる。表示面を拡大する時は、スライド軸7bに設けた不図示の位置保持部品を外し、表示面支持部7aを①方向に回動させ、スライド軸7bに沿って②方向に引き、不図示のストップで表示面支持部7aをスライド軸7bに固定してから再び③方向に戻す。請求項6は図3の(a)の上部表示面7下方に下部表示面8との屈曲部と平行な不図示の屈曲部が形成されて非使用時は前方に屈曲されて操作部・制御部と一体化できる構造である。

【0012】

【発明の効果】この発明によれば従来の装置と同等の大きさで、可撓性の表示面を用いて表示させる面積を一定の大きさから最大面積まで任意の大きさにでき、また、表示面が上下に回動可能に分かれる構造を用いるため、連続して表示させる面積を2倍にできる携帯可能な情報処理装置およびこの表示装置を提供できる。

【図面の簡単な説明】

【図1】この発明の実施例の斜視図

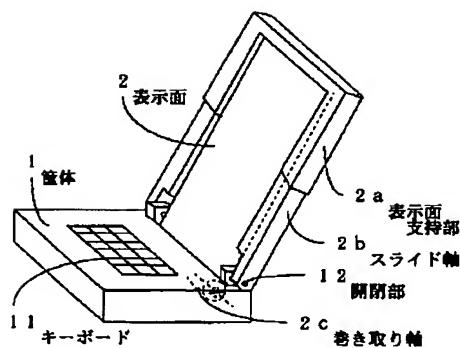
【図2】この発明の他の実施例の斜視図

【図3】この発明の別の実施例の、(a)は普通の使用状態の斜視図、(b)は表示面拡大時の斜視図

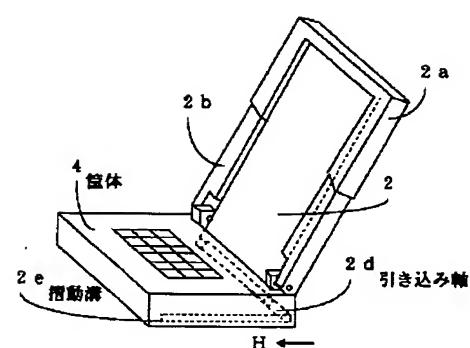
【符号の説明】

- 1 筐体
- 2 表示面
- 2a 表示面支持部
- 2b スライド軸
- 2c 巻き取り軸
- 2d 引き込み軸
- 7 上部表示面
- 7a 表示面支持部
- 8 下部表示面
- 8a 摺動軸
- 11 キーボード
- 12 開閉部

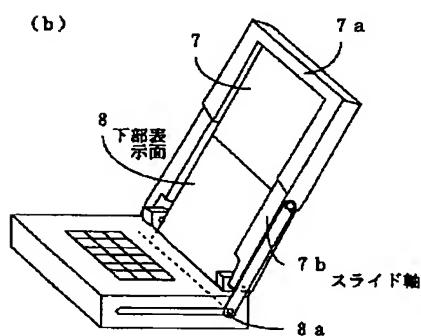
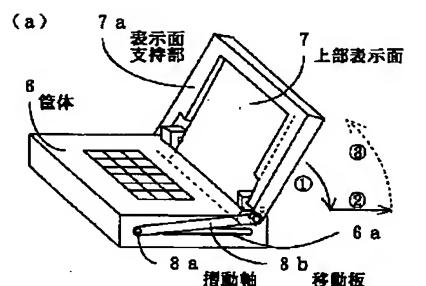
【図1】



【図2】



【図3】



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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] This invention relates to the structure of the display used for an information processor and these information processors, such as a computer of portable one apparatus called the laptop type and notebook type, and a word processor.

[0002]

[Description of the Prior Art] Although the information processor about this invention has a miniaturization with an important technical problem, many improvement is made and development is continued, a display also cannot but become small by this. However, the content of a display is also great just like the workstation by one side by the formation of small large capacity of data memory or auxiliary memory, improvement in the speed of the arithmetic unit abbreviated to CPU, etc. In this situation, in order to expand the screen, two or more flat-surface panels which are drops are connected, and the method of folding up at the time of un-using it, and containing is proposed by JP,3-58108,A (\*\*\*\* type flat-surface type display of Toyo Communication Equipment Co., Ltd.), JP,5-61635,A (information processor of Hitachi, Ltd.), JP,5-298257,A (carried type electronic equipment of Toshiba Corp.), etc. If these methods are used, package presenting of the multi-page information which cannot be displayed on one screen will be attained, and convenience will improve.

[0003]

[Problem(s) to be Solved by the Invention] In the example stated by the Prior art, since each screen is connected in moving parts, such as a ginglymus, the non-display section surely exists in the boundary of each screen. Therefore, although it is convenient when displaying the content from which data and the attribute like a character string differ, GURAFIKU, a table, etc. make a picture continue and cannot be displayed, for example.

[0004] The technical problem of this invention is offer of the portable information processor which can expand the screen to the size which GURAFIKU, a table, etc. are made to continue and can be displayed, and this display.

[0005]

[Means for Solving the Problem] This invention is the display of the portable information processor with which a control unit is prepared in the upper part of the case by which a control unit, a control section, and a display are consisted of, and a control section is contained. The flexible screen, The screen supporter on which a rotational center can slide in accordance with two slide shafts formed in the lower part, and this slide shaft, It consists of a stopper which fixes this screen supporter to a slide shaft, and a lower shaft in the case which makes the screen stretch, is stood to control unit back at the time of use, and is the structure which rotates ahead and can be united with a control unit and a control section at the time of un-using it.

[0006] Moreover, this invention is a portable information processor with which a control unit is prepared in the upper part of the case by which a control unit, a control section, and a display are consisted of, and a control section is contained, a display is display according to claim 1, and further, a

lower shaft is the structure of sliding on the bottom of a control unit, when the structure which is formed in the lower part of a SUSURAIDO shaft and rolls round the screen, or the screen fluctuates.

[0007] This invention is a portable information processor with which a control unit is prepared in the upper part of the case by which a control unit, a control section, and a display are consisted of, and a control section is contained. and a display The screen supporter on which a rotational center can slide in accordance with two slide shafts formed in the lower part, and this slide shaft, and the screen which stands on the back upper part of a control unit by one, It consists of a stopper which fixes this screen supporter to a slide shaft, and the lower screen which is crooked in the soffit of the aforementioned screen and is located under a control unit. the lower screen It is the structure which is drawn out up by the screen of the upper part which rotated back, and becomes one field with the upside screen. further the upside screen A flection parallel to a flection with the lower screen is formed in the aforementioned flection upper part, and it is the structure which is crooked ahead and can be united with a control unit and a control section at the time of un-using it.

[0008]

[Embodiments of the Invention] This invention is the structure of expanding a display by \*\*\*\* from the plane which one part which can be crooked in the screen prepared at least, for example, the drawer and incurvation state from the enlargement from the rolling-up section of a liquid crystal display or an electroluminescence drop, and flat-surface receipt.

[0009]

[Example]

Example 1: Drawing 1 is the busy condition view of an example of this invention, and a keyboard 11 and the opening-and-closing section 12 which slide shaft 2b can rotate are formed in the upper part of a case 1, and it prepares rolling-up shaft 2c which makes the lower part of the flexible screen 2 roll and stretch in the interior of a case 1 at non-illustrated a control section and the internal back. Screen supporter 2a supports the upper part of the screen 2, can go up and down it along with slide shaft 2b, and enables it to maintain the position in arbitrary height by friction of a spring etc. as a stopper of a claim 1. Two or more elements and control sections of the screen 2 depend these wiring on a non-illustrated flexible-printed-wiring sheet etc., although it connects with much wiring. When making area of the screen 2 into the minimum, after use rotates screen supporter 2a ahead using the opening-and-closing section 12, and is made to unite with a case 1 that what is necessary is to push screen supporter 2a to a lower part, to roll round the screen 2, and just to wind around a shaft.

[0010] Example 2 : Drawing 2 is drawing showing other busy conditions of this invention, and is replaced with rolling-up shaft 2c of the screen 2 of drawing 1 . Draw in a case 4, prepare 2d of shafts, and sliding slot 2e, and 2d of drawing-in shafts is pulled in the direction of H according to the mechanism in which it does not illustrate. It will draw, if screen supporter 2a is taken down to a soffit like drawing 1 , and 2d of rods slides on sliding slot 2e, they enter, and after use makes screen supporter 2a unite [ rods ] with a case 1.

[0011] Example 3: Drawing 3 is drawing showing this invention into which the screen is divided possible [ rotation ] up and down, and is (a). Drawing when using only the up screen, and (b) It is drawing when also using the lower screen. The lower screen 8 which is not illustrated [ which can rotate in the lower part of the up screen 7 in the lower part in a case 6 ] is contained. The lower part of screen supporter 7a supporting the upper part of the up screen 7 is connected to the lower screen 8 and move board 8b which can move sliding shaft 8a of one along with slot 6a. When expanding the screen, after removing the position attaching part article which is not illustrated [ which was prepared in slide shaft 7b ], rotating screen supporter 7a in the \*\* direction, lengthening in the \*\* direction along with slide shaft 7b and fixing screen supporter 7a to slide shaft 7b with a non-illustrated stopper, it returns in the \*\* direction again. A claim 6 is (a) of drawing 3 . The flection which is not illustrated [ parallel to a flection with the lower screen 8 ] is formed in up screen 7 lower part, and it is the structure which is crooked ahead and can be united with a control unit and a control section at the time of un-using it.

[0012]

[Effect of the Invention] Since the structure where area displayed in a size equivalent to conventional

equipment using the flexible screen is made to sizes arbitrary from a fixed size to the maximum area, and the screen is divided possible [ rotation ] up and down is used according to this invention, the portable information processor as for which area displayed continuously is made to double precision, and this display can be offered.

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[Translation done.]

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## CLAIMS

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## [Claim(s)]

[Claim 1] It is the display of the portable information processor with which a control unit is prepared in the upper part of the case by which a control unit, a control section, and a display are consisted of, and a control section is contained. The flexible screen, The screen supporter on which a rotational center can slide in accordance with two slide shafts formed in the lower part, and this slide shaft, It is the display of the information processor characterized by consisting of a stopper which fixes this screen supporter to a slide shaft, and a lower shaft in the case which makes the screen stretch, being stood to control unit back at the time of use, rotating ahead at the time of un-using it, and being able to unite with a control unit and a control section.

[Claim 2] It is the information processor which is a portable information processor with which a control unit is prepared in the upper part of the case by which a control unit, a control section, and a display are consisted of, and a control section is contained, and is characterized by a display being display according to claim 1.

[Claim 3] It is the information processor characterized by the structure which it is an information processor according to claim 2, and a lower shaft is formed in the lower part of a slide shaft, and rolls round the screen.

[Claim 4] It is the information processor characterized by the structure of sliding on the bottom of a control unit when it is an information processor according to claim 2 and the screen goes up and down a lower shaft.

[Claim 5] It is the portable information processor with which a control unit is prepared in the upper part of the case by which a control unit, a control section, and a display are consisted of, and a control section is contained. a display The screen supporter on which a rotational center can slide in accordance with two slide shafts formed in the lower part, and this slide shaft, and the screen which stands on the back upper part of a control unit by one, It consists of a stopper which fixes this screen supporter to a slide shaft, and the lower screen which is crooked in the soffit of the aforementioned screen and is located under a control unit. the lower screen The information processor characterized by the structure which is drawn out up by the screen of the upper part which rotated back, and becomes one field with the upside screen.

[Claim 6] It is the information processor characterized by the structure which it is an information processor according to claim 5, and a flection with the upside screen parallel to a flection with the lower screen is formed in the aforementioned flection upper part, and it is ahead crooked at the time of un-using it, and can be united with a control unit and a control section.

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[Translation done.]

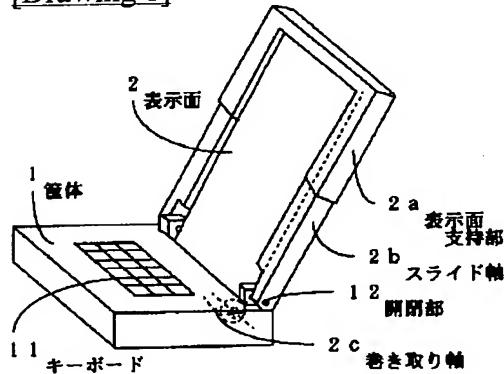
## \* NOTICES \*

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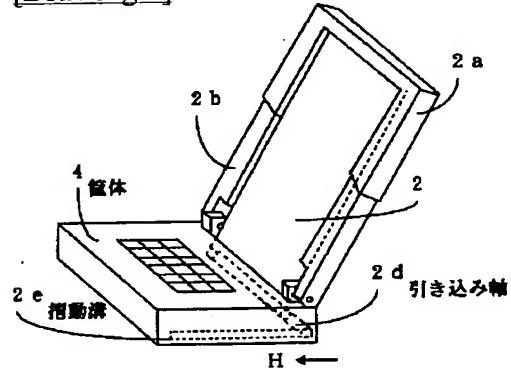
1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

## DRAWINGS

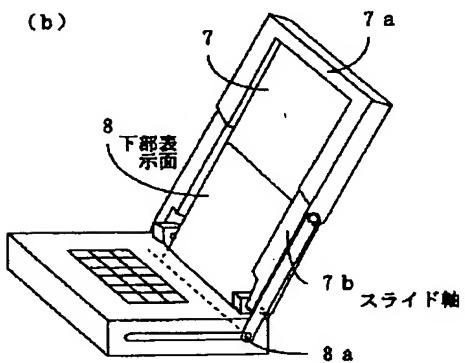
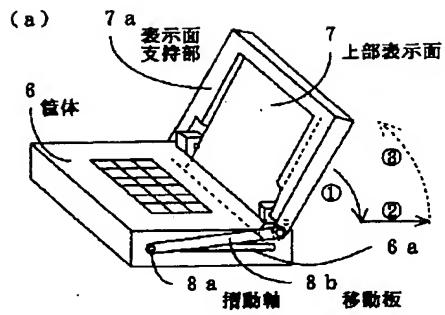
## [Drawing 1]



## [Drawing 2]



## [Drawing 3]



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[Translation done.]